Elaine McCluskey

From: Elaine McCluskey [mccluskey@fnal.gov]

Sent: Thursday, December 02, 2004 5:00 PM

To: Bill Foster; Chuck Federowicz; David Finley; David Harding ; Dixon Bogert; Duane Plant; Ed Crumpley; 'Erene Noyola'; Fernanda Garcia; 'Margie Bruce'; Rich Stanek; Shekar Mishra; 'Steve Geer'; Tom Lackowski; Vic Kuchler; Weiren Chou

Cc: 'Arkadiy Klebaner'; Jay Theilacker

Subject: Notes from 12/1/04 Linac Proton Driver Meeting - Civil

NEXT MEETING WILL BE FRIDAY, 12/17/04 IN conFESSional AT 9:30 A.M.

Attendees: Bill Foster, Jay Theilacker, Fernanda Garcia, Chuck Federowicz, Dave Finley, Vic Kuchler, Tom Lackowski, Ed Crumpley, Lee Hammond, Duane Plant, Rich Stanek, Elaine McCluskey

Items discussed:

1. Cryogenics and civil interfaces – Jay Theilacker special guest
    a. Location of building – determined best to separate from Klystron Gallery and put on other side of road because 1) allows for additions in the future, 2) better for noise and ODH separation, 3) allows for road to be straight
    b. Size of building – reviewed SNS building drawing, which is incomplete. Jay may want additional space to do hybrid system. Also need to include room for test stand. (Don't need refrigerator for this.) Need to make sure there's room for office/tech space/work area. SNS found would have been great to have OH crane. Jay thought about 5-10 ton (need to understand how tall this makes the building). Final conclusion – probably needs to be bigger than SNS building, but not sure. Elaine to get actual drawing from SNS and distribute.
    c. Penetrations for cryo from cryo building to tunnel – Jay brought some criteria, which are:
        All penetrations are to be straight and directly between refrigerator building and cryogenic alcove in linac tunnel.
        24" Main cryogenic transfer line penetration (for an 18" line – ok to oversize)
        12" Warm gas header return penetration – separated but parallel to 24" line
        6 – 4" cryogenic electrical & instrumentation conduits
        Also added during discussion that they should come in at mid-height of alcove wall, not at bottom like SNS
    d. Cryogenic alcove – Jay indicated the following:
        Alcove houses main cryo feed box for two cryomodules strings. Alcove needs to be in middle (lengthwise) of cyro section of linac. All cryo penetrations will come into back wall of alcove. Size to be 15' in direction of linac by 10' perpendicular to tunnel with common floor and ceiling height with main linac tunnel.
    e. Need to leave space for headers – Jay said can do in one cryo module spacing, or about 3m
    f. Need for additional cryo at upstream end of linac? Jay said it would either be new plant or 300m transfer line, likely on top of the berm. Either way, very expensive. Somewhat dismissed at this time as unnecessary.
1. Drawings – looked at drawings that are about ready. Comments included:
    a. 1 Site Plan – Add Swenson Farm Rd for construction. Put cryo building on other side of road.
    b. 2 Criteria Drawing – run CHW down old Kautz Rd?? Chuck looking for info from Dixon to put in criteria boxes about building functions/contents.
    c. 3 Injection Dump – mark this as "conceptual" since we hope it's a lot smaller
    d. 7 Tunnel cross-section – discussed clearances required in aisle. Concluded need 6 ft from edge of equipment to wall for our carts to pass one another. Ours is the same clearance as SNS (who has no alcoves), with our extra foot on the beamline side.
    e. 8 Transport line – make magnet into rectangle 2.5 ft by 1.5 ft
    f. 9 AP/MR crossing – add station of where this occurs at MR
    g. 10-11 Cryo stair – talked about how to get equipment into and out of tunnel. Concluded this would not be resolved for CD-0.
    h. 12 Upstream building – cross section incorrect – need to remove extra space underground

i. 13 Cooling – Bill will mark up drawing for non-civil portion. Test stands in wrong place.
j. Need one additional drawing showing Klystron Gallery layout. Refer to page 72 in prior linac report for equipment at 70 ft spacing.

2. SNS – Looked at drawings they sent us this week.
   a. Tunnel is 14' wide by 10' high.
   b. Would like to have other drawings – Elaine will try to get. (Subsequent to meeting, Elaine got link from SNS to lots of drawings.)
3. Installation logistics
   a. In light of SNS info, concluded that access near Pump Building would be advisable. Much discussion as to best way to accomplish. Covered ramp from grade would be very steep and/or very long. (also expensive) Not sure if this is better than drop hatch, crane, and horizontal 180 or 270 drive around access.
   b. Tom suggested 8GeV line could be used as entry point for ramp possibly if it's not needed for program.
   c. Dixon suggested full scale model mockup similar to what was done for MI, to allow both conventional and technical aspects of construction to be reviewed.
4. Text portion of report – Elaine sent to Bill and Dixon that morning for input and comment.
5. Schedule and deliverables – Complete drawings and text final draft for review by civil working group by Dec 13. Elaine to distribute. Don't meet on 12/8. Plan for meeting on 12/17 to review comments. Bill indicated plan is to submit report to DOE in late January. Discussion is happening between Directorate and DOE.

ACTION ITEMS (before drawings are done):
Bill will get new equipment cross-section for Linac tunnel, mark up cooling drawing, and will provide any additional information necessary beyond p. 72 of prior linac report for Klystron Gallery building plan layout.
Elaine will get SNS cryo building actual drawing to look at how they used space, and get it to everyone.
Elaine will look at cost savings of doing SNS-size tunnel compared to ours.
Dixon will supply information to Chuck for criteria drawing boxes.

NEXT MEETING WILL BE FRIDAY, 12/17/04 IN conFESSional AT 9:30 A.M.
****

Elaine McCluskey
Fermi National Accelerator Laboratory
FESS Engineering
(630) 840-2193
mccluskey@fnal.gov